COAL AGE

With Which is Consolidated
The Colliery Engineer

INDEX TO VOLUME XIX

January—June, 1921

Note.—Illustrated articles are denoted by an asterisk (*), book notices by a dagger (†). Titles are often abbreviated. They are indexed under their most important words, or, if no word be distinctive, under their first one (except "A," "The," etc.), or under some topical word not found in the title.

Following is a list of the pages included in the several numbers of the volume by date:

Jan. 6	Pages	1- 48
" 13	"	49- 96
" 20	"	97- 168
" 27	"	169- 214
Feb. 3	"	215- 258
" 10	"	259- 302
" 17	"	303- 346
" 24	"	347- 390
Mar. 3	"	391- 434
" 10	"	435- 478
" 17	"	479- 522
" 24	"	523- 564
" 31	"	565- 610
April 7	"	611- 654
" 14	"	655- 696
" 21	"	697- 738
" 28	"	739- 782
May 5	"	783- 848
" 12	"	849- 894
" 19	"	895- 938
" 26	"	939- 980
June 2	"	981-1024
" 9	"	1025-1066
" 16	"	1067-1108
" 23	"	1109-1148
" 30	"	1149-1186

A

Page

Accident compensation, increased..... 237
Accidents, coke ovens, N. S..... 1088
Accidents, Loose and torn clothes. Daugherty 22
Accidents, Colo. Fuel & Iron Co..... 562
Accidents, mine cars and locomotives.....1166
Accidents, Penn.....15, 431, 477
Administrative units, Regrouping. Hoover 759
Agriculture, Dept. of..... 830
Alabama
—Gov't coal terminal.....1048, 1064
—Production. McLaurine.....*159
—Strike.....288, 407, 476, 552, 631, 871
—Wage reduction.....1094
Ala. and Mingo men look to Washington..1006
Alaska
—Annual report..... 66
—Coal beds overrated..... 406
—Gov't coal washing plant..... 561
—Leasing law.....193, 256, 522, 978
Alaskan Eng. Comm.....256, 846
Alcohol made from coal..... 626
Alden Coal Co. installs large hoist. Le Grand.....*797
Alfred, F. H., urges summer delivery.....1008
Allen brands Riley charges..... 241
—Indictment.....334, 836, 879
Alma Thacker Fuel Co..... 743
Americanizing work among miners. Discussion.....319, 998
Amer. Economic Assn.
—Meeting..... 29
—Paper.....*708
Amer. Eng. Council.....28, 348, 760
Amer. export coal opportunities 1921. Andrade.....*113
Amer. Gas Assn..... 397
Amer. Hardwood Mfrs. Assn.....1093
Amer. Inst. Min. & Metall. Engrs.
—Annual meeting.....405, 457
—Combined meeting with A. I. E. E..... 316
—New secretary.....1172
—Papers.....*481, *485, *529, *570, *576
—Phila. sections.....1088, 1167
—Program Wilkes-Barre meeting.....1168
—Stoughton, B., resigns.....*1047
Amer. mining, Natural advantages favor. Discussion..... 188
Amer. Sm. & Ref. Co.....*983
Amer. Soc. Mech. Engrs.
—Conn. meeting..... 596
—Papers.....*60, 74
Amer. Wholesale Coal Tr. Assn.
—Market exchange..... 200
—Meeting.....1091
—Papers.....1049
—Program.....922, 1007
—Textbook reconsignment.....1076
—Why wholesalers are fighting.....1169
Amer. Zinc & Chemical Co.....*750
Analyses—Ash constituents. DeGraaf.....*534
Analyses—Ash content in coal. Ward.....*403
Analyses—Scientific classification. Hood..*190
Analyses Spitzbergen coal..... 744
Analysis of coal..... 192
Analysis Iowa coal..... 439
Aneroid barometer readings (inq.).....1084
Anthracite
—Costs, realization and margin..... 244
—Ever-running mines..... 303
—Haulage difficulties..... 656
—Mine workers to reopen discussion..... 31
—Operators deny miners' demands..... 237
—Production..... 435
—Production, Parker..... 110
—Rates hearing..... 506
—Shipments.....374, 596, 713
—Small sizes..... 739
—Tax.....642, 762
Anthracite Smokeless Briquet Co.....*663
Appropriations, coal, refused by House comm..... 56
Argentine, imports.....660, 1099
Army appropriation bill.....374, 831
Ash cause it to fuse, What constituents in. DeGraaf.....*534
Ash content in coal. Ward.....*403
Ash separated from coal. Herzog.....*580
Association price reports good or bad?..... 740
Associations in coal industry..... 697
Astonishing moderation..... 565
Atlas, World, commercial geology..... 416
Austria's coal supply..... 719
Ayrshire Coal Co., self-dumping cages. Baker.....*799

B

Background in mining..... 783
Barney, telescoping wheels.....*450
Barometer, Aneroid, readings (inq.).....1084
Barometer, recording.....*585
Bathhouse, H. C. Frick Coke Co.'s. Baker *349
Bearings, roller.....*9
Be fair even if it hurts.....1149
Belgium
—How coals are designated.....*1162
—Imports and exports.....1001, 1099
—Production.....378, 462, 1139
Bell, G. T.....*114, *290
Belt conveyor transfers coal across river. Shumway.....*525
Bids
—Buffalo.....594, 684
—Bureau of Mines..... 642
—Cleveland..... 762
—Cincinnati.....754, 1185
—Engineer office, Phila..... 464
—Gov't fuel yard 551 (Correction 642)..... 916
—Marine Corps..... 680
—Mass. institutions..... 424
—Navy.....334, 507, 640
—New York City.....464, 552, 766, 1005
—Panama R.R. Co.....416, 642, 682
—Seaboard Air Line.....1013
—Shipping Board.....201, 288, 303, 463, 508
—U. S. Housing Corp.....1088
Bituminous
—Demand unlikely boost prices. Cushing..1049
—Number mines..... 549
—Production, U. S..... *97
—Economists study situation..... 29
—Waste, Harrington Emerson..... 547
Blacksmith shop.....*717
Blacksmith shop, Donk Bros.' No. 4 mine *1034

BLASTING. See also "Explosives"

—Automatic winding spool for blasting. Lightburn.....1165
—Exam. questions.....370, 677, 1085
—Mining coal before blasting. (inq.). *676. Discussion.....999, *1125
—Shotfiring, Competency in. Discussion 187, 276, 912, 1165
Boiler fuel, Future of oil as.....*17
Boiler—Recorder.....*824
Boiler, Seven recent changes in. Stirling..*822
Boilers, pulverized coal under..... 16
Boilers, Red Rock Coal Co.....*440
Boilers—Treatment of feedwater (inq.)..... 369
Book reviews.....231, 270, 910
Borehole delivers clean and dry sand to locomotives.....*995
Boston fuel administrator asks cut in coal price..... 82
Brackett, G. S.....*404
Brake, electric.....*617
Breaker. See also "Preparation."
Breakers
—Cranberry Creek Coal Co.....*305
—Susquehanna Coll. Co.....*618
—Weston.....*171
—Woodward.....*851
Breaking down coal without powder. Sickman.....*180, 265
Breathing apparatus, Briggs.....*3
Breathing of sealed section of mine. Discussion.....*186, 369, 409, *584, 716
Bridge, suspension.....*525
Briggs oxygen breathing apparatus..... *3
Briquets of fine materials, Making. Stevens *663
Briquets, powdered coal and. Hall..... 16
British coal industry losing heavily..... 547
British Columbia coal inquiry..... 954
British Columbia's output. Dunn..... 151
Broad Top region, Sizing and preparing. Baker.....*1151
Bucket, run of mine stored with derrick and grab. Baker.....*393
Bucket, self-tripping and self-closing.....*1
Buffalo Bituminous Coal Assn.....1066
Buffalo Eagle Colliery Co.....*784
Buffalo market 1920. Chamberlin..... 150
Bunkers, Canada's Pacific ports..... 329

BUREAU OF MINES

—Analysis of coal..... 192
—Appropriation for coal inspection..... 28
—Bain, H. F., director..... *32
—Bids..... 642
—Central agency to purchase Gov't. coal . 194
—Explosives, 1920, use of..... 937
—Fatalities, Coal mine, Adams..... 122
—Fatalities decline..... 641
—Gas masks for fighting fires.....1038
—Lignite research..... 636
—National aspects of coal industry. Holbrook..... 120
—Purchase Gov't. coal..... 366
—Safety work..... 8
—Sample and test coals..... 506
—Scientific classification. Hood.....*190
—State laws on use of electricity in coal mines..... 20
—Steel gages vs. brass or copper..... 902
—Survey kiln plants.....1081
—Test of carbon monoxide detector. Harrington and Dyer..... 269
—To protect pulverized coal plants..... 746
Bureau, Fuel research, Wadleigh..... 581
Bureau of Standards..... 15
Bureau of Statistics.....
Bureau of Supply.....1106
Burns Bros.' report..... 979
Burrell gas detector, Testing with. (inq.) Marsh.....*913
Business in Gov't..... 895
Buy now or all is lost. Sampson.....1009
Byproduct coke.....1025

C

Cage, overturning.....1030
Cage, self-dumping.....*799
Calder coal bill...195, 197, 283, 391, 418, 465
Calder coal investigation.....33, 49, 77, 82, 102, 125, 169, 236, 330
Calder, house problem..... 287
Calder report..... 597
Canada
—British Columbia coal inquiry..... 954
—British Columbia consumers, inquiry into coal prices..... 290
—British Columbia's output. Dunn..... 151
—British Columbia production..301, 608, 937
—Bunkered, coal, Vancouver..... 345
—Closed lamps in British Columbia..... 579
—Crown lands mined domestic use only..1088
—High costs Vancouver Island coal..... 589
—Lignite bricks, Burns..... 65
—Nova Scotia ratifies Montreal agreement 76
—Pacific ports to install bunkers..... 329
—Production.....432, 548, 636
—Ry. commissioners warns coal shortage.1173
—Special Parliamentary Comm. report....1088
—Steamships to use coal..... 329
Canadian Inst. Min. & Metal..... 589
Canadian Min. Inst., meeting. Robie..... 590
Cancellations French contracts..... 83
Capitalist, Every workman should be..... 170
Capstan, electric.....*271
Carbon dioxide. To control combustion on basis. Harger *495, Correction..... 626
Carbon-tetrachloride, Danger in using.....1036
Carnegie Dock & Fuel Co.....*872
Carnegie Inst. Tech..... 612
Cars
—Coming of solid..... 982
—Dump operates by gravity, Rotary.....*1074
—Evolution.....*361
—Fifty-ton side dump.....*816
—Labor and uncertainty in moving. Ashmead.....*567
—Mine.....*533
—Mine, spring draft rigging.....*1034
—Movement, Lytle coll. Ashmead.....*1155
—Puller, railroad.....*271
—Side dump.....*1117
—Skid.....*441
—Trucks for, Stevens.....*9
—Wheels, roller-bearing. Discussion..... 275

421044

Page

Cave bill, mine..720, 896, 940, 954, 1007, 1094
Cave, mine, Scranton. Ashmead *354
Cave-ins, repairs to property.....846
Cement-gun work. Southward.....1081
Central Coal Assn. 1148, 1186
Central Penn. Coal Producers Assn....923, 1148
Central Pocahontas Coal Co.—Dry cleaning coal by air flotation. Woods *810
Chain, Rugged conveyor *666
Chain, Three distinct parts form conveyor..*814

Chamber of Commerce
—Coal and live stock bills.....366
—State control of prices 26
—Transportation Dept. 592
Charts
—Analysis, classified pools.....490
—Costs 363
—Daily production bituminous, 1920.....97
—Dependence on coal 106
—Dumpings 105
—Foodstuffs, U. S. 69
—Fuel consumption, U. S. 60
—Furnace operation 495
—Growth large coal fields.....107
—Growth, output 106
—Prices 111, 131, 135, 136, 137, 139, 141, 143, 144, 146, 148, 152, 154, 156
—Transportation costs 106
Chart speeds interpolation of contours. Haverstick *662
Chase, F. M., obituary *723
Chemical classification at Sewalls Point..374
Chemical dictionary .....†270
Chute, telescopic *573
Chutes in pitching seams. Discussion....*911
Chutes, loading *179
Cigarettes and pipes in gas menace to safety. Discussion 70, 453
Cincinnati Coal Exc. 980, 1066
Clamp, wedge *669
Classification, Scientific. Hood *199
Classified tidewater coals. Payne....*443, *490, *539
Clearances, Hampton Rds.....977, 1014, 1056, 1098, 1139, 1177
Coal Age
—Index 290, 362
Coal, Coke and Iron Ore Comm.....288

Coal Min. Inst.
—Paper 57
Coal Merchants Assn. Inc. of N. Y.....28

Coal
—Ash separated from. Herzog *589
—Classified tidewater. Payne.*443, *490, *539
—Conserving, through use of gas Ehlers.*397
—Control bill. Wooton 376
—Cost by locomotives in road service...102
—Crisis on way. Another. Dunn.....507
—First choice 784
—Industry 1920. Hall *126
—Industry Indiana, regulation. Eschbach 412
—Industry, National aspects. Holbrook..120
—Just one ton of 655
—Men and Gov't, experts to meet. Wooton 877
—Mining as seen by ore engineers. Mason.*708
—Mining is booming Where 347
—Mining, Skill in. Discussion 912
—More facts needed. Smith 119
—Panic, another. Wooton.....551
—Penn. not yet mined 362
—Pile dwindling *834
—Plan central agency to purchase Gov't..194
—Powdered, and briquets. Hall.....16
—Properties, Value 565
—Restoring reputation Amer. 479
—Supply, sources 108
—Tar pitch 664
—Taxing clean 656
—Under microscope. Thiessen.....*12
Coefficient of friction in mine ventilation (inq.) 410

COKE
—Accidents, U. S. 1088
—Austria 719
—Byproduct 1025
—Byproduct plant of T. C. I. & R. Co..*126
—Byproduct plants in U. S. 1129
—Czecho-Slovakia, production.....678
—Production, West Va. 1128
—Wages, Operators cut 642
Colburn, C. L. *1168
College ill-housed. A good.....566
Colorado
—Coal investigation 256
—Court upholds 30-day clause.....681
—Employment uncertified men 628
—Insurance, compensation 562
—Review, 1920, Boyer 158
—Wage reduction 300
Colo. Fuel & Iron Co.
—Accidents 562
—Betterments program 736
—Report 607, 1107
Colorado-New Mexico Coal Operators Assn. 476
Colo. Retail Coal Dealers Assn. 1066
Columbia coal 722
Columbus rejects bid 720
Combustion on basis of carbon dioxide *495, Correction 626
Commissioner's powers, Coal. Wooton....769
Common policy for miners 960
Compared, Two adjoining mines. Edwards.1082
Compensation law 563
Competition between anthracite and bituminous 1149
Composition of natural gas (inq.) Mosbey 500

Page

Compressors, portable vs. stationary. Wagner *668
Comptroller scores coal companies 372
Compulsion without regulation possible?..1067
Compulsory fact finding unconstitutional.1007
Concentrator, air *811
Conference on coal bill 1007
Confiscate coal, right of R.R. 592
Confiscated coal, G. L. Baker defines....236
Confiscated coal, compensation.....611
Congressional echoes.....434, 522
Conserving coal through use of gas. Ehlers *397
Conserving coal, wasting labor.....1110
Consolidated Coal & Coke Co—Plumville apron conveyor. Baker *699
Consolidation Coal Co.
—Clubhouse at Idamay *1119
—Locomotives, gathering purposes. Kingsland 570
—Report 607, 652
Conspiracy case, trial postponed.....32
Constituents in ash cause it to fuse. De Graaf *534
Construction, National, Conference.....505
Consumed, coal, electric power 680
Consumer boost price of coal. Gabell and Payne 712
Consumer ownership winning in Germany. Herzog 230
Consumer, Responsibility of coal. Lesher.. 74
Consumers Fuel Co., storage Eureka mine.*261
Consumption, Australia 671
Consumption bituminous 1920 101
Consumption, coal, locomotives.....548
Consumption, coal, Public Utilities N. Y. City 1167
Consumption, Colo., 1920 159
Consumption, fuel, U. S.....*60, 548
Consumption, power 326
Contours, Chart speeds interpolation. Haverstick *662
Contract, Purchasing agents propose uniform 593
Contracts, Cancellations, French 83
Contracts, Indiana 766
Contracts, Navy awards partial 594
Contracts, N. Y. City awards coal.....721
Control here and decontrol abroad.....259
Conveyor, Apron, Baker *699
Conveyor, Belt, transfers coal across river, Shumway *525
Conveyor chain *814
Conveyor chain, Rugged *666
Conveyor, retarding 264
Co-operative buying. Wing 1045
Coronada Coal Co. 1052

COSTS
—Anthracite 244
—Coal, British Columbia 954
—Coal locomotives in road service....91, 102, 248, 548
—Coal report 375
—Federal coal control 50
—Federal Tr. Comm. to reveal Gov't. coal 236
—High, justify price Vancouver coal....589
—Labor compared 821
—Living 1086
—Obstacles return pre-war. Wing.....*363
—Prices bituminous, with production....*111
—Production and profits in Gt. Britain. 35, 1006
—Production, central Penn. 829
—Production, etc., prevent lower prices..959
—Railroads' coal 762
—Scraper loading, Benedict *222
—Storage battery locomotives.....1120
—Ton of coal. Smith.....870
Coyle, Major W. R. *1092
Cranberry Creek Coal Co.
—Handling bank coal. Ashmead.....*266
—Preparation, Ashmead *305
Credit, Long term 670
Crusher, Single roll *623
Culm bank *665
Culm bank, Loading, by breasts Ashmead.*908
Culm, dumping *266
Cushing, G. H. 683, 1131

CUTTERS, COAL
—Breaking down coal without powder. Sickman *180
—Cutting machines in working low coal. Levin *21
—Cutting performance, Lecorchick 312
—Great Britain, 1919 583
—Machine which cuts, dislodges and loads coal *359
—Oldroyd mining machine *785
Czecho-Slovakian production...285, 678, 1178

D

Danger of deferring payment to roads.... 347
Daugherty enjoined in conspiracy case. Wooton 637
Davis Coal & Coke Co.—Kempton fan....*803
Dearth of orders may presage another coal panic. Wooton 551
Decision, inevitable 435
Deflation, Labor's opposition to.....611
D. L. & W. R.R., Woodward breaker. Ashmead *851
Deliveries at South Amboy.....377
Department of Mines, U. S.....1093, 1109
Denver Coal Merchants Assn.....894
Derailing device, Simple.....*318
Detector, Test of carbon-monoxide. Harrington and Dyer.....269

Page

Detroit, prices, Dunbar.....145
Development improved equipment. Ream..955
Diefenderfer, T. F., photo.....112
Directory coal shippers.....372
Discouragement to mining students. Purdue 627
Distribution, bituminous, 1920.....100
Dividends 736
Dock, Carnegie Dock & Fuel Co.....*872
Dock workers may tie up docks, N. W.....768
Dominion Coal Co.....636, 737, 893
Donk Bros.' No. 4 mine, Allen.....*1027
Door, automatic mine.....*624
Doors, overcasts better than mine. Dickson 1160
Dorr thickeners 809
Douglass Barnes Corp.....257
Dragline excavator.....*447
Drill, diamond, Evans.....*705
Drill, portable air.....*452
Drill press.....*497
Drillholes, Old Newcastle mine drained by diamond. Ash.....*1069
Drilling—Portable vs. stationary compressors, Wagner.....*668
Drilling speed hammer drills.....405
Drills, driving shot holes by power. Marshall *787
Drills, portable electric. Connell.....*818
Dump, compressed air.....*176
Dump, full revolving.....*1111
Dumping cars.....529
Dumpings, coal.....103, 105, 839, 850
Dumping mine rock.....*1116
Dump, Rotary car, operates by gravity..*1074
Dumps, Rock larries build their own. Ashmead *813
Dusting, British rules require stone.....1036
Dusting coal mines, Stone used.....745

E

Economic problem.....348
Economies effected in handling bank coal. Ashmead *266
Economists study bituminous situation....29
Edge, Senator, warns against regulating business 1134
Eldorado Coal & Min. Co.....597

ELECTRICITY. See also "Haulage," "Hoisting," "Power," "Locomotive," "Lamp," etc.
—Automatic circuit breakers and tie breakers *659
—Control panel, automatic.....*626
—Fuse vs. automatic switch.....950
—Hoist, Petersburg *856
—Induction motor motes, How. Stratzman *903
—Laws, State, on electrictiy in coal mines 20
—Locomotives, Changes in electric. Bright *51
—Motor starter, Automatic.....441
—Power, Electrical installation gives insufficient (inq.), 72. Discussion.... 544
—Precautions to prevent electrical equipment from fires. King.....1161
—Production 548
—Substation, automatic *861
—Substation without attendant. Bright...*613
—Susquehanna electric hoists, Le Grand..*941
Eliminating one man at coal tipple.....*617
Elimination industrial waste.....374
Elk Horn Coal Corp., report.....652
Elkins, Senator, opposes Calder coal bill..283
—Urges buying winter fuel.....880
Emerson, Harrington, studies bituminous waste 547
Employees Magazine 667, *705
Engrs. Soc. Western Penn., paper.....746
Engine, hoisting, run by water-wheel.....1040
Engine-plane haulage, (correction) 22
Engine plane-haulage (inq.), 586. Correction 757
Engine, uniflow, drives mine fan.....*907
Engine, winding.....*225
Engrs. Club of Phila.....16
Equipment, Improved, vs. conditions. Discussion 319, 715
Essential industry 2
Eureka Coal & Min. Co.—Belt conveyor. Shumway *525
Europe, Coal-pillar drawing in. Rice.....*480
Europe's fuel problem.....259
Every workman should be a capitalist....170

EXAMINATION QUESTIONS
—Bituminous mine foremen—Quantity of water in ditch; rescue work; prevention of accidents; mine gases 1166
—Mine foreman and firebosses—Duties of foreman; information from man seeking employment; law regarding cut-throughs in rooms; ventilation; first aid; handling and use of explosives; uses of anemometer, water gage and tape line, 958. Instruction to cutter and scraper of mining machine; drawing of room and entry pillars; maps kept at mine; precautions regarding coal dust; timbering; hoisting, 1000. Non-explosive gases; dangers in abandoned workings; principal causes of mine fires and precautions; air passing down shaft; pumping; blasting, 1085. Requirements in airways and traveling ways according to law; crushing coal pillars; explosive gases in bituminous mines; precautions in dry and dusty mines generating explosive gas 1127
—Mine foremen, 12th anthracite dist.—Weight of coal; anthracite mine foremen, factors of danger; water gage reading; timbering; flushing; barometric pressure.....24

Page

—Mine foremen, 13th anthracite dist.—Ventilation; size of pillars; water gage; precautions to prevent explosion; causes and checking of squeeze..... *73
—Mine foremen, 14th anthracite dist.—Air to dilute methane; oxygen content to support oil-fed flame; anemometer readings; hp. to produce 90,000 cu.ft.; ventilating pressure to double quantity of air; mine-law requirements; safety lamps permitted; electric safety lamps; duties of mine foremen..... 235
—Mine foremen, 15th anthracite dist.—Medical room or emergency hospital; mine gases; precautions in driving approach entries; ventilation through tunnel; driving toward submerged workings; tapping water from seam above cause of breaks in couplings and chains 322
—Mine foremen, 16th anthracite dist.—Surveying; duties of mine foreman, ventilation, 411. Length of tunnel, stress in hoisting rope; building mine tracks; size of props; causes blow-out shot and how avoided 456
—Mine foremen, 17th anthracite dist.—Effect of contracted area on water gage; ventilation; resistance to length of airway; instruments for mine foremen; circulation in arched airway; pressure due to water gage; horsepower producing circulation; power to increase circulation 501
—Mine foremen, 18th anthracite dist.—Natural ventilation; instruments for determining conditions in mines; falling barometer; diluting marsh gas to render it harmless; area, perimeter, rubbing surface of airway, 545. Fan ventilation; doubling velocity of air in roadways; barometric reading; pumping in slope; water gage and pressure; ventilation..... 587
—Mine foremen, 19th anthracite dist.—Districting mines; examination of abandoned mines; stations in mines; locked safety lamps; keeping working place safe; instruments to measure air; ventilation 630
—Mine foremen, 20th anthracite dist.—Mine law concerning blasting; men employed in explosive gases; examination gaseous mine; weight cubic foot anthracite; safety lamp; pressure in dam; duplex pump discharge..... 677
—Mine foremen, 21st anthracite dist.—Why flame does not pass gauze of safety lamp; blackdamp, how produced and effiects; use of safety lamps when inspecting for gas; duty on finding gas; treatment for electric shock; water under high pressure safer to approach than under low pressure... 828
—Mine foremen, 22nd anthracite dist.—Anthracite mine laws; ventilation; sectional area of airway; rubbing surface in circular shaft; ventilating pressure due to water gage; working with open lights; examination of gaseous mine; removal of firedamp..... 868
—Misc.—Centrifugal pumps; the determination of dips from boreholes; endless-rope haulage; to reduce number of doors in a mine.....1044
—Misc.—Mechanical equipment in charge of mine foreman; rubbing surface of road; safety blocks; travel on gravity plane; mine gases; surveying and mapping; large amount of air with small water gage; ventilation; pumping in slope; hoisting 758
—Misc.—Mine gases; flame through gauze; rubbing surface of airways; whitedamp 914
—Misc.—Pumping; electric lamps; arched tunnel bids; barometer reading; electrical precautions; layout of mine.... 718
—Misc.—Quantity of air circulated by fan; air needed to prevent cap; oxygen content to support life, ventilation, quantity of air passing arched airways; advantages firing shots by electricity; water gage and speed of fan, 370. Correction 545
Examining boards, Personnel anthracite (inq.). Hennigan 188. Discussion..408, 627
Experience, Mining, required of mine superintendents. Discussion 321, 755, 826

EXPLOSION. See also "Gases, Mine," and "Ventilation"

—Dust explosions, to protect pulverized coal plants 746
—Fire or explosion?..... 260
—Minnie mine, Ashworth.....*267, 716
—Old Ben Coal Corp..... 256
Explosive, new non-freezing military. Ashmead *527
Explosives—consumed 1920..... 937
Explosives—Exam. questions 958
Explosives, legislation on..... 236
Export. See "Trade."
Extracts from G. H. Cushing's memorials..1131

F

Facts vs. insinuations 1
Families, Wage earners' 680
Fan. See also "Ventilation."
Fan at normal capacity, Operating (inq.) 23
Fan driven by uniflow engine.....*907
Fanhouses..... *221, *440, *1034
Fan, Kempton.....*803
Fan, Power required to drive (inq.)..... 544
Fans, Auxiliary 784
Farmers plan co-operative purchase of coal 1169
Fatalities decline 641
Fatalities in 1920, Coal mine, Adams.... 122
Federal court upsets price fixing by navy.. 639
Federal regulation coal industry..... 372
Federal Reserve Board.....82, 378
Federal Tr. Comm.....192, 375
Federated Amer. Eng. Soc.....28, 592
Feedwater, treatment (inq.)..... 369
Feiker, F. M.....*920
Filtered water plant, Watchman sole attendant, Baker.....*750
Fireboss, authority of. Discussion..... 956
Fireboss' warning unheeded. Discussion.. *867
Fire or explosion?..... 260
Fire, Kathleen mine.....505, 652, 694, 780
Fires, Danger in using carbon tetrachloride extinguishers in mine.....1036
Fires.....257, 562, 781, 1107, 1123
Fletcher, C. J., photo..... 104
Flotation, coal 579
Flotation, Froth, England 497
Flotation process, Hill.....*993
Flushing—Hydraulic filling 982
Flushing, old mine in Scranton..... 966
Flushing, sand, Fushun collieries.....*897
Food, Retail prices..... 236
Ford Collieries Co.—Electrification Berry No. 3.....*657
Foreign countries, sidelights on coal. Payne 670
Foreign Trade Financing Corp..... 670
Foreman, futile, 391. Discussion..... 955
Foremen, Handicapped mine..... 755
Foremen, Mine, must not displace workers 502
Forge and repair shop (inq.). Dennis.....*717
France
—Commission in U. S..... 909
—Embargoes Amer. coal 328
—Imports 417, 977, 1139
—Press disagree, German coal..... 285
—Prices.....285, 588
—Production.....259, 589, 1177
—R.R. coal stocks..... 977
—Spa coal terms..... 83
—Stocks at mines 1177
Freight car loading gains.....768, 960
Freight cars, idle 760
Freight rates. See also "Trade."
Freight rate on salt reduced..... 871
Freight rates....466, 506, 562, 590, 635, 638, 645, 724, 830, 831, 1008, 1051, 1135
Freight rates, European 462
Freight rates, head of Lakes..... 684
Freight rates, Lake, Ellis..... 763
Freight rates, President favors reduction..1086
Frelinghuysen bill.....725, 769, 833, 877
—Conferences coal men June 7 and 8....1089
—New bill.....919, 962, 1007, 1051, 1109, 1133, 1171
—Would continue assigned cars..... 879
Frick Coke Co., H. C.
—Bathhouse, Baker *349
—Cutting performance, Lecorchick..... 312
—Lowers wages..... 920
Frogs in laying mine switches (inq.)., *629, Discussion *1163
Froth flotation for cleaning coal..... 497
Fuel control cost U. S., during war..... 35
Fuel Economy Symposium, paper..... *17
Fuel research bureau, Wadleigh..... 581
Fuel supply of world, Breckenridge..... *60
Full shovel load and full speed ahead.....1110
Furnace—Combustion on basis of carbon dioxide, Harger, *495. Correction.... 626
Furnaces, pipeless 227
Fuse vs. automatic switch 950
Fuse, What constitutents in ash cause it to, De Graaf.....*534
Fushun collieries.....*897, *945

G

Garfield, Dr. 286, 548
Gas, Conserving coal through use of, Ehlers *397
Gas, midwest coal for water 703

GASES, MINE

—Cigarettes and pipes in gas, Discussion.. 70, 453
—Composition natural gas (inq.) Mosby.. 500
—Detector, Burrell gas (inq.) Marsh....*913
—Detector, Test of carbon-monoxide, Harrington and Dyer 269
—Exam. questions.....322, 545, 758, 828, 868, 914, 1085, 1127, 1166
Gauzes, Steel, vs. brass or copper..... 902
Geographical shifts in coal production, Tryon and McKenney *106

GEOLOGICAL SURVEY, U. S.

—Atlas, World, commercial geology..... 416
—Byproduct coke plants in U. S.....1129
—Coke production 166
—More facts about coal needed, Smith... 119
—Power consumption 326
—Production 37, 161, 726
—Stocks, coal *834
Geology of coal mines, Discussion..... 320
Germany
—Berlin wants English coal 417
—Bill, socialization, Herzog 325
—Consumer ownership, Herzog 230
—Delivers coal 347
—Exports and imports 325, 1001
—Locomotives, figures on mine 906
—Nationalize coal mines? Herzog..... 184
—Prices 794, 1098, 1177
—Production declines as result 8-hr. day.. 636
—Production 259, 285, 504, 669, 1014
—Ruhr mines need new equipment..... 1178
—Suffers coal shortage, Heise..... 279
—Wages 326
Glen Alden Coal Co. 960
Go-devils, use of, Ashmead *567
Gov't. Bureau of Supply 768
Gov't. business in 895
Gov't. concentration essential in mining... 939
Gov't. control of coal industry, Avert. Lloyd 109
Gov't. control coal 376, 636, 1052, 1128
Gov't. co-operation, Watkins 874
Gov't., elimination of waste, Hoover.... 759
Gov't., federal, survey 966
Gov't. files answer to Natl. Coal Assn. suit 770
Gov't. fuel yard, centralized buying 80, Bids 551, 916
Gov't. to ask dismissal of Natl. Coal action 724
Gov't. wants oil and gas valuation engineers 1123
Grand Jury indicts Ind. companies and miners 420
Gravity plane (inq.) *999
Great Lakes, Upper, season closed..... 15
Greenlaw, P. H., photo 114
Griggs, H. M. *873
Groverman, W. H., resigns 1173
Growth of coal exports 849
Guardrails prevent derailment *1163
Gunite 220

H

Hammill Coal Co. *263
Hanger room *1032
Hanging wrench on safety valve..... 169

HAULAGE. See also "Hoisting," "Power," "Electricity," "Safety," "Rope," "Locomotive," etc.

—Anthracite difficulties 656
—Electric mine locomotives, Changes, Levin *1157
—Endless vs. tail-rope haulage on slope (inq.) 1126
—Engine-plane, (correction) 22
—Engine-plane (inq.) 586, Correction... 757
—Exam. questions 1044
—Frogs in laying mine switches (inq.) *629, Discussion *1163
—Gravity superseded by mechanical devices, Ashmead *1155
—Locomotive pulling vs. pushing trip (inq.) Bowes 1165
—Locomotive with 27 yrs. active service.*358
—Locomotive, storage battery, Smith....*795
—Locomotives for heavy duty, Beach...*792
—Mine-locomotive haulage (inq.) Butler *321, Discussion *543
—Rope, go-devils *567
—Rope rollers, Watts 1035
—Shelter holes, Discussion 825
—Tracklayer, Experiences of, Discussion 71
Hazard Coal Operators Assn. 1024
Heaps, G., photo 112
Heart of coal operator 2
Heavy returns in experience 1150
Heilner, P. B. 331
Hillsboro wood tipple replaced by steel, Garcia *857

HOISTING. See also "Haulage," "Power," "Electricity," "Safety," "Rope," etc.

—Alden Coal Co. installs large hoist, Le Grand *797
—Cage, self-dumping, at Oakland City, Baker *799
—Donk Bros. No. 4 mine, Allen.....*1027
—Electrically operated hoist, Petersburg.*856
—Electric slope hoist, Susquehanna, Le Grand *941
—Engine plane (inq.) 586, Correction... 757
—Exam. questions 758, 1000
—Gillespie 489
—Heavy duty portable hoist.....*317
—Peabody Coal Co. breaks record..... 478
—Room hoist *229
—Shaft Norwood-White Coal Co.....*217
—Skip 406
—Skip hoist, Balanced *952
—Skips substituted for cages, Allen and Garcia *485, *529
—Trend in hoisting 783
—Two hoists lifting coal 1200 and 1500 ft. Ashmead *801
Holland
—Consumption 1098
—Production 285
Honesty, safety, efficiency 675
Hoover and coal industry..... 739
—Committee to study waste..... 374
—Contact between Gov't. and industry... 962
—McGraw-Hill executive as aid 920
—Resigns engineering presidency..... 760
—Sure to get $500,000 asked 1093
—Value of publicity in coal industry.... 962
House of Rep. grants Hoover $250,000 for foreign trade 1051
House walls *996
Houses in Lorraine, Pa. *227
Housing, Rosita, Mex, Skougor....*983, *1037
Howat, A. 362, 720
Howe, J. W., resigns 1052
Humphrey, J. M. *860
Hungary, production 326
Hydraulic filling, Safety in 982

I

Page

Idaho's coal beds. De Coster.....•227
Idamay mines .....•1120
Ignoring an opportunity 611
Illinois
—Chicago retailers indicted 640
—Production 193, 300, 431
Imperial Coal Corp. .....•1111
Imports. See "Trade."
Improtence of force 940
Improved equipment vs. conditions. Discussion 319
India exports 588
Indiana
—Check-off, no 333
—Coal Comm. suit dismissed 280
—Conspiracy trial postponed 32
—Contracts, state 766, 978
—Indicted companies and miners.....420, 552, 596, 637, 878
—Labor seeks from law makers 26
—Law, Bill to codify mining 416
—Law in strip mining 280
—Operating conditions 1920..... 204
—Operators will fight Gov't. regulation..1169
—Prices contract coal 160
—Production 160, 331
—Putting foreigners out 1167
—Regulation coal industry. Eschbach.... 412
—State industrial board 377
—Trial operators postponed 91
—United Mine Workers of Amer. 1052
Indiana Bituminous Operators Assn. 654
Indiana Retail Coal Merchants Assn...938, 980
Indict Chicago coal retailers 640
Indict coal companies, Cleveland..... 283
Indicted operators, dealers and miners.. 420, 552, 596, 637, 682, 878
Indicted, Washington dealers 502
Indictment, Allen and Baker...334, 836, 879
Indictment quashed 683
Indictments stand, coal 871
Industrial buyers are incredulous. Sampson.1009
Industrial Relations Court. Strikes against. Hall 323
Inevitable decision 435
Insinuations. Facts vs. 1
Instruments, fireboss .....•545
Instruments, mine foremen 501
Insurance, Ind. 377
Intl. Chamber of Commerce.....31, 375
Intl. Labor Conference postponed..... 285
Intl. mine rescue meet 640

INTERSTATE COMMERCE COMM.

—Cancels service orders 1 and 3..... 80
—Cut freight rates Lake coal. Wooton.... 831
—Interchange switching, Atlanta 922
—Interstate freight rates 684
—Railroads' coal cost 762
—Railroad expenses 569
—Railroads to report fuel costs 271
Invest and reinvigorate business..... 216
Iowa
—Operating conditions encountered. Baker.•437
—Shaft sunk by clamshell. Baker.....•217
Iowa Coal Operators Assn. 302
Ireland's peat 953
Irwin Gas Coal Co.
—Derailing device .....•318
—Storage, Baker .....•393
Island Creek Coal Co., report 652
Italy
—Coal from Germany 284
—Harbor at Genoa .....•116
—Imports, coal 719, 935, 977
—Rys. to buy coal through N. Y..... 460
It cannot be done, but it is done..... 849

J

Jackson Coal Co.—Rebuilding burned tipple. Middleton .....•313
Japan
—Prices, coal....34, 83, 239, 504, 719, 1014
Jermyn Coal Co., lower wage rate..... 596
Jigs arranged in steps .....•618
Jigs .....•309
Jigs, cast iron .....•809
Jobbers 1921 platform 656
Jobbers not opposed to legislation..... 683
Johnson, W. L. A., photo 104
Journal of Electricity 288

K

Kanawha Coal Operators Assn. 521
Kansas
—Court ruling ends strike 416
Kennedy, D. C., photo 114
Kentucky
—Eastern development lags 830
—Southeastern. Anderson .....
—Western coal proves merit 143
Kenyon, Senator 1080
Kerr, J. G. .....•214
Kiel harbor .....•671
Kilgore, G. D., photo 112
Kingston Coal Co.
—Fan driven by uniflow engine.....•907
—Locomotives and charges in one station..•989
—Pump runs 12 yrs. Ashmead.....•804
Knox County Coal Operators Assn..... 433
Koepler, W. E., photo 112
Kohler bill 954

L

LABOR
—Agreement, Montreal 76
—Americanizing work among miners. Discussion 319, 998
—Arc-wall cutting rate 78
—Bellaire mine workers want less work.. 635
—Central Penn. refuse to discuss lower wages 1008
—Colo. court upholds 30-day clause..... 681
—Come here to work and not to strike.. 502
—Common policy for miners 960
—Compensation, Accident, increased..... 237
—Costs, mining .....•363
—Cost of labor compared 821
—Dock workers wage cut 768
—Eight hour day in Germany 636
—Eight-hour day bill 1036
—Employment practices, modern. Irwin..•1077
—Foreman, futile 391. Discussion..... 955
—Foremen, Mine, must not displace workers 502
—Handling men. Discussion.....674, 1082
—Holidays, coal mine 326
—Howat fined $200 for ordering strike.. 720
—Hqwat freed calls strike..... 362
—Hustlers, will not work with..... 281
—Hustlers join union 372
—Industries, decrease in employment....•679
—International Conference postponed..... 285
—Kansas strike, Court ruling ends..... 416
—Labor's opposition to deflation..... 611
—Long-term credits, solution unemployment 458
—Men want ten million back pay..... 26
—Migrate from high to low-wage mines... 871
—Mine turned over to creditor employees.. 271
—Miners' union will lobby at Harrisburg. 281
—New Zealand 1086
—Nova Scotia workers dissatisfied..... 960
—Open shop upheld by court 592
—Penn. Coal Co. miners threaten strike.. 82
—Putting foreigners out of Indiana.....1167
—Rhondda strikers return 8
—Scale inequalities to be discussed..... 31
—Senate to probe Mingo troubles..... 281
—Skill among miners. Discussion..... 233
—Stewart on mine-labor efficiency..... 480
—Strike, Ala. 407, 552, 631
—Strike, British.....641, 681, 723, 770, 832, 880, 923, 966, 1006, 1052, 1092, 1135, 1150, 1173
—Strike, Penn. Coal Co. 1135
—Strike, Washington.....594, 720, 880
—Strikers, W. Va., fire on towns..... 924
—Strikes against Industrial Relations Court. Hall 323
—Strikes 11, 237, 801, 916
—Tell miners whole truth 1025
—Two undesirable aliens to be deported..1168
—Uncertified mine foremen (inq.) 234. Discussion 410, 585, 628
—Union membership 237
—Unions subject to suit 546
—Union urges open-shop law to end strike in Mingo Co. 78
—Wage earners' families 680
—Wage reduction, Ala. 1094
—Wage reduction, Central Penn. 1094
—Wage reduction, Hawkeye Coal Co..... 300
—Wage reduction, Washington 594
—Wage scale, Rainey and Frick..... 508
—Wage scale, Washington 506
—Wage scale, West. Ky. will not cut.... 642
—Wages, Coke operators cut 642
—Wages, Frick Coke Co. 920
—Wages, Germany 326
—Wages, increase, British 284
—Wages, no reduction says Lewis..... 916
—Wages reduced, Hard rock miners 876
—Wages of mine workers increase 1920, Hall .....•272
—Want right to organize established by law 502
—Want work divided evenly 1123
—Willis Branch men quit work 502
La Follette Comm. finds coal problem complex. Wooton 245
Lake cargo rates. Ellis 763
Lake coal, cut in freight rates. Wooton.. 831
Lake coal dumped..103, 105, 839, 850, 1005, 1175
Lake loadings 873, 1134
Lake season opens late 850
Lake traffic in coal, 1920. White.....•103

LAMP, MINERS

—Closed lamps in British Columbia..... 579
—Exam. questions...235, 630, 718, 828, 914
—Gauzes, Steel, vs. brass or copper..... 902
Langeloth, filtered water plant. Baker..•750
Larries, Rock. Ashmead .....•813
Laudable propaganda 1068

LAW. See also "Compensation."

—Bill to codify mining 416
—Bituminous mine, Penn....676, 999, •1125
—Certification under Penn. revised mine law. Discussion 1041
—Exam. questions 235, 677, 868
—Leasing, Alaska.....193, 256, 522, 978
—Lever act 20, 80, 421, 465
—Supreme Court upholds rent laws..... 726
—Tax on realty sales 421
—Uncertified mine foremen escape penalty, (inq.) 234, Discussion .410, 585, 628, 756
—We need fewer laws. Lloyd 917
Leasing law, Alaska 193, 256
Legislate not in anger 215
Legislation, G. H. Cushing's memorials on coal 1131
Lehigh & Wilkes-Barre Coal Co.
—Garden competition 1064
—New Inman colliery, Ashmead .....•801
Lehigh Coal & Navigation Co.
—Employees buy stock 541
—Report 389, 563
Lehigh Valley Coal Co.
—Diamond drill, Evans .....•705
—Screening at Mineral Spring breaker...•991
—Storage battery locomotives, Meyer... 667
Lessee coal lands, rights to purchase.... 388
Let's have done and away 49
Lever act 20, 80, 421, 465, 683
Lignite bricks, Burns 65
Lignite research 636
Lincoln Coal Co., automatic substation, Bright .....•613
Linthicum, Rep., Baltimore prices.....1008
Little, Arthur D. 348
Little Buck Mountain .....•446
Little, H. W., photo 112
Living cost 1086
Lloyd and Dodson condemn Calder bill.. 200
Loader—Rotary shovel, Hunt .....•789
Loader runs on coal bottom, Dillig.....•63
Loading, Costs of scraper, Benedict.....•222
Loading culm bank by breasts. Ashmead.•908
Loading—Electric dipper shovel.....•395
Loading machines, coal. Zern 715
Loading machines in working low coal. Levin •21, Discussion 542, 954
Loading ships, Machine vs. hand. Campbell .....•573
Loadings, Lake 873, 1134
Locker room .....•352
Locomotive. See also "Haulage."
Locomotive, By mule or by 566
Locomotive, Changes in electric. Bright.. •51
Locomotive for gathering purposes. Kingsland 570
Locomotive-haulage, Mine. (inq.) Butler •321, Discussion .....•543
Locomotive, largest mine .....•54
Locomotive, mine. Beach .....•792
Locomotive pulling vs. pushing trip. (inq.) Bowes 1165
Locomotive, storage battery. Smith.....•795
Locomotive, Storage battery. Meyer..... 667
Locomotives, Changes in electric mine. Levin .....•1157
Locomotives, costs, storage battery vs. reel type gathering 1120
Locomotives, storage battery, Kingston...•989
Locomotive with 27 yrs. service.....•358
Locomotives, German figures on mine.... 906
Locust Mountain Coal Co.
—Preparing small sizes, Ashmead.....•171
—Surface type shovel for mine work. Ashmead .....•395
—Weston colliery, Ashmead .....•446
Logan Coal Operators Assn. 345, 1148
Looking ahead with diamond drill. Evans..•705
Louisville jobbers had poor year. Williams .....•144
Lower Vein Coal Co., injunction 562
Ludlow, E. 457, 1088
Lykens Coll.—Boiler trials 17
Lytle Coal Co. .....•1155

M

McCoy, J. E., photo 112
McGee, J. F. 372, 632
McKenney, W. F. .....•29
McKinney, W. D., photo 104
Magruder succeeds Howe 1135
Management—Futile foreman 391, Discussion 955
Management—Wisconsin Steel Co. .....•1077
Manchurian plant, Yamoaka.....•897, •945
Mapother, W. L. 592
Maps
—Bituminous, Penn. 1094
—Employment decrease 679
—Northern West Va., Penn., eastern Ky... 442, 444, 445
—Scranton 355
—Spitzbergen 744
Maps kept at mines 1000
Markets. See "Trade."
Mattes mine-cave bill 720
Maurer, C. E. .....•193
Medal, John Fritz 760
Mingo operators welcome Senate inquiry..1173

MEETINGS

—Amer. Economic Assn. 29
—A. I. E. E. and A. I. M. E.....26, 316
—Canadian Inst. Min. & Metal..... 589
—Canadian Min. Inst. 590
—Coal Merchants Assn. Inc. of N. Y..... 28
—New River Operators Assn. 302
—N. Y. State Coal Merchants Assn..... 466
—Southern Appalachian Operators...76, 238
—Rocky Mtn. Coal Min. Inst..... 590
—Tug River Coal Operators Assn. 302
—West Kentucky Coal Bureau..... 302
Mechanical efficiency, Sickman..... 265
Merchandising replaces transportation saving 524
Merchants Assn. of New York.....28, 460

Page

Mexico
—Ash content in coal. Ward *403
—Rosita. Skougor *983, *1037
Michigan-Ohio-Indiana Coal Assn 302, 738, 1024
Microscope, coal under. Thiessen *12
Middle West coal trade. Requa *131
Milestones in British mine development ... 1081
Miller, F. T., blamed for making fiasco ... 33
Miller seam 57
Milwaukee wholesalers face loss. Bleyer ... 210
Mine Electricians & Mechanics Inst. 1161
Mine foremen on examining boards? Discussion 408
Mine inspectors' difficulties. Discussion ... 865
Mining machine. Martin *785
Mining machine for rapid head driving ... *359
Minnie mine explosion. Ashworth *267
Minnesota considers coal probe bill ... 768, 877
Mitchell vibrating screen *991
Mixing technical and trade functions ... 170
Monongahela Valley Assn. 1024
Montana Coal Operators Assn. 345
Morfit, C. C. *546
Morganstown Coal Club 390, 521, 564
Morrow defers European trip 1094
—Opposition to super-power survey 371
—Represent coal Intl. Chamber Commerce. 1008
Motor, Fuse vs. automatic switch for ... 950
Motor motes. How and induction. Startzman *903
Motor starter. Automatic 441
Motorope *229
Mt. Carmel Coal Co., substation *861
Mule or by locomotive 566
Must I do it myself? 1068

N

Nanty Glo has first coal-mine substation. Bright *613
Natl. Assn. Pur. Agts. 333, 593

NATIONAL COAL ASSN.

—Advisory committee 1148
—Calder raid opposed in Senate 463
—Colo. coal operators withdraw 31
—Convention *964
—Delegates to Intl. Chamber of Commerce. 1051
—Denies collusion in priority orders. Wooton 637
—Injunction, Gov't. 770, 831, 924, 1007
—Officers deny attempt to have Hoover removed 1172
—Price and production costs of bituminous *111
—Program annual meeting 836
—R.R. relations committee 1051
National Construction conference 505
National Retail Coal Merchants Assn.
—Meeting 921
—Paper 917
Naval appropriation for fuel 288, 953, 966
Navigation Commissioner's report 226
Navy asks coal appropriation 768
—Awards partial contracts 594, 682
—Commandeer coal 271
—Federal court upsets price fixing 639
—Opens supplementary bids 640
—Prices paid for coal 80
Netherlands
—Imports, coal 34
—Prices 678
Newcastle mine drained by diamond drill-holes. Ash *1069
New England, coal receipts ... 632, 640, 1055
New England, Trade conditions, Wolkins .. *133
New Jersey coal trust hearing 1051, 1134
New Mexico, San Juan county field 617
New relations and permanent peace 523
New River Co., report 653
New River Operators Assn. 302
New Zealand miners want day work 1083
News from the capital. Wooton .. 595, 682, 722
New York
—Bids, coal 464, 552, 766, 1005
—City awards contracts 721
—City saves on coal 640
—Coal consumed by Public Utilities 1167
—Emergency coal distribution 546
—Exports 328, 588, 935, 1177
—Fuel bill city depts. 15
—Market 1920, Morris *146
—Retail industry sound. Rice 123
N. Y. Conference Bus. Paper Editors ... 458
N. Y. State Coal Merchants Assn. 466
New York Wholesale Coal Trade Assn. ... 1051
Norfolk Coal Exchange 738
Nor shall private property be taken for public use 611
Northeast Ky. Coal Assn. 390, 1148
Northern West Va. Coal Operators Assn. 302, 404, 478, 609, 654 738, 782, 1024, 1108
Northwest industry. Welch *152
Norwood-White Coal Co., No. 7 mine ... *217
Not new but better methods 348
Nova Scotia Min. Soc. 590
Number of mines 436, 549

O

Obstacles to return pre-war mining costs. Wing *363
Ohio
—Coal seams and strata (inq.) 455
—Columbus rejects bid 720
—Compensation law 563
—Eastern, review. Pinaire *141
—Indict coal companies 283, 736
—Northern review. Hill *147
—Review, 1920. Lehman *153
—Tax, production 389
Oil, Penn. coal and shales vary in their content. Ashley and Fettke 401
Oklahoma—Right lessee purchase coal lands 388
Oklahoma Retail Coal Dealers Assn. 938
One man stores or reclaims 1500 tons of coal a day. Thornley *261
Open shop upheld by court 592
Operating conditions in Iowa. Baker ... *437
Operator owns coal rights only *825
Operators join opposition to coal bill. Wooton 1133
Opportunity, Ignoring an 611
Ore and Coal Exchange 244, 873
Ore engineer questions coal methods 698
O'Toole mining machine *359
Overcasts better than mine doors. Dickson 1160
Own your home or rent? 304
Oxygen mine-rescue apparatus, British. Cooper *3, Discussion 715

P

Pacific Coast Coal Co.—Newcastle mine. Ash. *1069
Palmer, J. F., photo 114
Palmer's staff to conduct coal inquiry 79
Panama Canal.
—Prices 508
—Restrictions on coal bunkering 284
—Shipments 522, 660
Panel for control motor generator sets ... *626
Panther Creek Co.—Sand drying *995
Parker, E. W. 959
Patents 346, 433, 521, 610, 654, 696, 894
Payroll stolen, Mine 366
Pea size, Retailers oppose elimination ... 1004
Peace, New Relations and permanent ... 523
Peat, briquetting 664
Peat handling, primitive *66
Peat, Ireland's 953
Peat solves railway fuel problem 860
Pennsylvania
—Accidents 15, 431, 477
Penn. Central, 1920. Sell *142
—Coal and shales vary in oil content ... 401
—Coal not yet mined 362
—Compensation 15
—Map, bituminous 1094
—Mine-cave bill 720, 879, 896, 940, 954, 1007, 1094
—Mine-cave damages. Ashmead *354
—Production 389, 432, 477, 608
—Tax bill 879, 916
Pennsylvania Coal Co.
—Air compressor at Avoca *669
—Hustlers join union 372
—Miners threaten strike 82
—Strike 1135
Personnel anthracite examining boards. (inq.) Hennigan 188, Discussion 408
Petersburg coal hoist *856
Phila. & Reading Coal & Iron Co.
—Gov't. fuel yard contract 680
—Houses in Lorraine *227
Phila. Eng. Club, paper *137
Phila. market 1920. Hammer *137
Philippine Islands 26
Pier, Southern Ry. coal *113
Piers, coal, electrification 432
Pike County Coal Co. *856, 1123
Pike County Coal Min. Inst. 610
Pillar above pillar. Edwards 1163
Pillar drawing in Europe. Coal. Rice *481
Pillars, crushing 1127
Pillars, Robbing, (inq.) Rogers *757, Discussion *997, *1125
Pilot, Don't drop the 697
Pittsburgh coal. (inq.) 369, Discussion .. *825
Pittsburgh Vein Operators Assn. of Ohio. 610
Plane, Gravity (inq.) *999
Planning mine. Discussion 542
Plasticity in roof 50
Plumville coal, Baker *699
Plymouth Coal & Min. Co. *704
Politics, Protection and 347
Pond Creek Coal Co., report 652
Pooling and preparation 784
Pools, Sewalls Pt. Exc., Standardizing ... 509
Pools, Tidewater coals classified. Payne. *443, *490, *539
Portable power plant *400
Powder, Breaking down coal without. Sickman *180
Powder—New non-freezing military explosive. Ashmead *527
Powder price settled 960
Powdered coal and briquets. Hall 16
Powdered coal as fuel ..... †910
Powdered coal saves stand-by losses 362

POWER. See also "Boiler," "Engine," etc.

—Boiler, Seven recent changes in Stirling. *822
—Coal consumed in electric power 680
—Decrease in winter production 326
—Donk Bros.' No. 4 mine. Allen *1027
—Electricity gives insufficient power (inq.) 72, Discussion 544
—Locomotives charged in single station. Ashmead *989
—Merger 37 companies with West Penn Power Co. 1147
—Natural gas drives generators *703
—Portable plant for driving small units .. *400
—Power required to drive fan (inq.) 544
—Public utility power plants 548
—Substation, automatic *861
—Substation without attendant. Bright .. *613
—Super-power plants at mines 909
—Super-power survey 371
—Water 416

PREPARATION

—Apron conveyor, steel *699
—Breaker, reconstructed. Ashmead *618
—Concentrating tables 127
—Concentrating tables, Strain *741
—Cranberry Creek Coal Co.'s plant. Ashmead *305
—Crusher, Sinlge roll *623
—Diamond mines, Baker *1111
—Flotation, Froth, England 497
—Flotation process, Hill *993
—Pooling and preparation 784
—Screen, Mitchell electric vibrating *991
—Sizing and preparing hard low volatile coal, Baker *1151
—Small sizes, preparing, Ashmead *171
—Tipple, Jackson Coal Co. *313
—Washing, coal, Prochaska ..... †231
—Washing coal for metallurgical coke. Stewart *807
—Washing coal with air instead of water. Woods *810
—Woodward breaker, Ashmead *851
Price fixing by navy, Federal court upsets .. 639

PRICES

—Anthracite, current 883, 926, 968, 1013, 1054, 1096, 1137, 1175
—Baltimore price, Rep. Linthicum 1008
—Bituminous, 1920 101
—Bituminous, current 247, 292, 336, 380, 423, 468, 511, 554, 599, 644, 686, 728, 772, 838, 883, 926, 968, 1012, 1054, 1096, 1137, 1175
—Bituminous, with production costs *111
—British decontrol unsettles prices 504
—Bunker coal, foreign ports 329
—Charts .. 111, 131, 133, 135, 136, 137, 139, 141, 143, 144, 146, 148, 152, 154, 156, 160
—Consumer boost price of coal. Gabell and Payne 712
—Detroit, Dunbar 145
—French 285, 588
—German 794, 1098
—Ill. and Ind., 1920 160
—Italian 284, 1056
—Japan 34, 83, 239, 504, 719, 1014, 1139
—Panama Canal 508
—Production costs, etc., prevent lower coal prices 959
—Retail 767
—Retail prices of food 236
—Saar, new 1177
Producer as consumer 697
Producing districts in No. West Va., Penn. E. Ky. *442, *444, *445

PRODUCTION, COAL

—Alabama, McLaurine *159
—Anthracite 1920. Parker 110
—Belgium 378, 462, 672, 1139
—British. See "United Kingdom."
—British Columbia .. 151, 301, 608, 937, 1023
—Bituminous, U. S. *97
—Canada 432, 548, 636
—Colorado 158
—Costs at a central Penn. mine 829
—Czecho-Slovakian 285, 678, 1178
—Dominion Coal Co. 737
—England, Discussion 71
—France 259, 588
—Geographical shifts. Tryon and McKenney *106
—Germany 259, 285, 504, 669, 1014
—Holland 285
—Hungary 326
—Illinois 193, 300, 431
—Increased production per man. Discussion 275
—Indiana 160, 331
—Keeping up anthracite 435
—Missouri 257
—Ohio 141
—Ostrau-Karwin dist. 494
—Penn. 143, 432, 477, 563, 608
—Prussia 935
—Silesia, Upper 678
—Uniform production. - Discussion 232
—United Kingdom 259, 328, 1098
—United States 37, 82, 161, 825, 834
—West Va. 157, 1128
—What will be goal 1921? Spangler and Gutheim 118
—World 61, 721, 726
Profits in Gt. Britain. Coal production costs and 1006
Propaganda, Laudable 1068
Properties, Value coal 565
Proposals, coal, N. Y. State 693
Proposals, sealed, Mich. 949
Protection and politics 347
Public confidence, Task of regaining 959
Pulverized coal, delivering *128
Pulverized coal plants, to protect 746
Pulverizing stations 612, Discussion 1124

PUMPING

—Centrifugal pump formulas (inq.). Rutherford 827
—Centrifugal pump runs 12 yrs. without repairs. Ashmead *804
—Exam. questions 587, 677, 718, 758, 1044, 1085
—Gathering pump, self oiling *864

Page

—Old Newcastle mine drained by diamond drillholes. Ash *1069
—Rotary mine pump *805
—Shifting location of slope pump (inq.). Sharrer *277
—Terms used in pumping (inq.) 1084
—Works steadily but not long 1026
Purchase winter coal early 634
Purchasing Agents Assn., South Bend 412
Purchasing agents, uniform contract 593
Pyrometer, Wanner optical *536

R

Rail bonding 544

RAILROADS

—Bids on coal for Panama R.R. Co. ..416, 642
—Cars serving mines 436
—Chesapeake & Ohio shipments 1088
—Confiscate coal 592
—Coal consumed by railroads 548
—Coal cost 762
—Cost coal consumed by locomotives ..91, 248, 548
—Danger of deferring payments 347
—Earnings 28
—Efficiency increased by intelligent coal purchasing 1173
—Embargo in violation of contract enjoined 416
—Expenses 569
—Investigation 1080
—Mapother, W. L., pres. L. & N. 592
—Mine ratings on M. & W. Ry. 680
—Norfolk & Western improvements ..290, 432, *573
—Open-top equipment in bad order 1076
—Penn to reduce wages 592
—Pere Marquette Ry. 1008
—Rate hearing, New England 375
—Rate hearing, trunk lines, coal 289
—Reading dissolution 375, 1008, 1134
—Reparation claims 377
—Seaboard Air Line Ry. 1013
—Shipments ..153, 374, 596, 713, 830, 920, 1088, 1134
—Surplus, March 924
—Taxes, 1920 546
—Virginian Ry. chemical classification 374
—Western Maryland 388
Railway Track Work Co. *1081
Rainey Co., W. J., cuts wages 508
Rebuilding burned tipple, Middleton *313
Reclaims 1,500 tons of coal a day, One man, Thornley *261
Reconsignment changes 635
Reconsignment charge remains $7 a car 923
Recorder indicates excess air *824
Red Jacket Cons. Coal Co. *274
Red Rock Coal Co. *437
Redstone coal, working (inq.) 72, Discussion 232, 498
Reduces losses in output, Baker *657
Reed, Senator, voices opposition to regulation of business 242
Refuse, handling breaker, Ashmead *266
Regrouping administrative units, Hoover 759
Regulation coal industry, Indiana, Eschbach 412
Regulation possible, compulsion without ..1067
Regulator, Size of opening (inq.) 957
Rent laws, Supreme Court upholds 726
Renton Coal Co.—sludge pond *741
Repair shop, Forge and mine (inq.), Dennis *717
Reparations not to blame 1150
Report, Burns Bros. 979
Report, Minority, Senator E. J. Gay 330
Reports good or bad? Association price 740
Republic Iron & Steel Co.—Washing coal for metallurgical coke, Stewart *807
Reputation, Amer. Coal, Restoring 479
Research bureau, Fuel, Wadleigh 581
Research, engineering 489
Research, fellowships 613
Rescue apparatus, British oxygen mine, Cooper *3, Discussion 715
Rescue by airplane 431
Rescue work 1166
Resizing anthracite 1004
Responsibility mine officials, Young 1083
Responsibility of coal consumer, Lesher 74
Restoring reputation Amer. coal 479
Retail prices 767
Retail industry sound, N. Y. Rice 123
Retailers in 1920, Problems and accomplishments, Gordon 121
Retailers oppose elimination pea size 1004
Rhodes fuel-purchase bill 798
River coal moving to Louisville 871, 936
Road to understanding 981
Robbing pillars with machines (inq.), Rogers *757
Rocking towers *951
Rock larries build own dumps, Ashmead ..*813
Rockwork, portable vs. stationary compressors, Wagner *668
Rocky Mtn. Coal Min. Inst., meetings ..564, 590, 1135
Rocky road of reform 303
Rollers, Rope, Watts 1035
Rolling-bearing mine-car wheels, Discussion 275
Roof, Arching, prevents damage to surface, Breeden 1164
Roof of "B" seam, Roberts 57, Discussion *498, *826, 1163
Roof, Plasticity in 50
Roof slips, Guarding against, Edwards ..1164
Rope rollers, Watts 1035
Rosita, Mex., Skougor *983, *1037
Rotary car dump operates by gravity *1074
Russia, imports 1099

S

Page

SAFETY. See also "First Aid," "Accidents," "Examination Questions," "Lamps, Miners," "Explosions," etc.

—Cigarettes and pipes in gas. Discussion 70, 453
—Exam. questions ..24, 630, 718, 1000, 1127
—Fireboss, warning unheeded, Discussion ..*867
—Honesty, safety, efficiency. Discussion 675, 1083
—Loose and torn clothes cause accidents, Daugherty 22
—Make mine safe, Lightburn 22
—Make the mines safer, Discussion 716
—Mining coal before blasting (inq.), *676, Discussion 999
—Precautions to prevent electrical equipment from fires, King 1161
—Protect pulverized coal plants 746
—Robbing pillars with machines (inq.), Rogers, 757, Discussion *997, *1125
—Safety work, Bureau of Mines 8
—Shelter holes on haulage roads, Discussion 825
—Shotfiring, Competency in, Discussion 187, 276, 911, 1165
—Signal at dump pit, Broadt *1076
—Thick coal seams safely removed, Pryde and Magraw *576
—Training men, Discussion 454
—Ventilation, Safe practice in, Discussion 233
—Tenn. mines, Discussion 956
Saghalien 417
Sand to locomotives, Borehole delivers *995
St. Louis Coal Club 980
St. Louis coal market, 1920 ..... *139
St. Paul Coal Co., fire 1123
Sale Indian coal lands 20
Scale, How to install a tipple, Dodge 821
Scales, mine 15
Schall, Rep., Gov't control 636
Schipper Coal Min. Co. *1151
Scholz, Carl, mine cars *361
Scott, O. G., photo 104
Scranton Coal Co. fined 920
Scranton mines pay mine-cave damages, Ashmead *354
Scraper, dragline *305
Scraper loading, Costs, Benedict *222
Scrapers 449
Screen, vibrating *991
Sealed section, Breathing of, Discussion *186, 369, 409, *584, 716
Searles, J. W. *1093
Senate Comm. on Manufacturers 243, 245, 286, 332, 376, 391
Senate considers seasonal freight bill 1135
Separator, electro-magnet *580
Service orders 722
Service, Value of 49
Setting up a false oracle 1109
Sewell's Point Coal Exchange 433, 509, 880
Shaft bottom layout *1028
Shaft sunk by clamshell, Baker *217
Shakers, bun *177
Shales vary in oil content, Penn, Ashley and Fettke 401
Sharpless, F. F. 1172
Shelby Coal & Clay Co. 271
Shelter holes on haulage roads, Discussion 825
Shenango iron pit *708
Shipment, Kanawha coal, Commercial 324
Shipments blamed for freight movement 720
Shipments, head of Lakes 1128
Shipments, N. Y. Barge Canal 1169
Shipments, Panama Canal 522, 660
Shipments, R.R. 153, 374, 596, 713, 830, 920, 1088, 1134
Shipments, "3oo" Canal 82
Shipments, tidewater bituminous, 1920 101
Shippers, Classified directory coal 372
Shippers, Eastern, adjustment freight rates 638
Shipping Board bids 201, 288, 303, 463
Ships, Machine vs. hand loading, Campbell *573
Short way to professional prominence 612
Shotfiring, Competency, Discussion 187, 276, 911
Shovel. See also "Working."
Shovel adapted to mine work, surface type, Ashmead *395
Shovel, electric *528
Shovel, Rotary, Hunt *789
Shovel work, steam *129
Shower room *351
Signal at dump pit, Broadt *1076
Silesian mine, Setting sights *569
Silesian, Upper, coal as peace bond 479
Silesia, Upper, production 678
Sizes, anthracite, small 739
Skill vs. chance in mining, Discussion 70, 233
Skill in coal mining, Discussion 912
Skips substituted for cages, Allen and Garcia *485, *495
Sludge, prepared for market *741
Small mine met its surface problems, Baker *263
Smith, G. O. 458, 959
Smith, M. H., obituary 460
Smokeless Operators Assn. of West. Va. 433, 1066
Smoot-Reavis resolution 56
South Africa, largest single coal deposit in world 863
South Wales mines, Practice in, Griffith ..499
Southern Appalachian Coal Operators' Assn. 894
Southern Ohio Coal Exc. 478, 610
Southwest, 1920, Knickerbocker 154
Spain, tariff regulations 1014
Spike puller *802
Spiral pickers *179
Spitzbergen coal *744
Spool, Automatic, for blasting, Lightburn 1165

Page

Sprinkler tank *130
Sprinkle water, machine to remove, transport and *572
Stabilization, coal, bill not likely to pass, Wooton 1171
Standardization, Progressive, Discussion ..367
Standardizing pools, Sewalls Point Exc. 509
Statistics, collecting 940
Statistics for 1918 taxation 288
Statistics, foreign trade 192
Steamships to use coal, Canadian 329
Steel mine tie will not slip *622
Stephens, Roderick 1132
Sterling Coal Co.—Electric brake *617
Stewart on mine-labor efficiency 480
Stocks, coal *834, 881, 1004
Stoker design, Factors in, Harrington 987
Stokers, Donk Bros.' No. 4 mine *1031
Stone dusting 745, 1036
Storage, anthracite in 969
Storage battery locomotives reduce cost of gathering cars, Meyer 667
Storage, coal, at mines 1122
Storage, coal, rocking towers *951
Storage, Co-operative buying and reserve, Wing 1045
Storage, Eureka mine, Consumers Fuel Co., Thornley *261
Stores run-of-mine, Small mine, Baker ..*393
Stoughton, B., resigns *1047
Stout, D. A. *696
Strikes. See "Labor"
Stripping, absolute removal system *1117
Strip pits, Two, Fushun Coll. Yamaoka ..*945
Substation at Cordova mine *861
Substation, first coal-mine, Bright *613
Substation, What is a truly automatic? 996
Success dependent on service 1
Successful, Too, by far 896
Sues Tidewater Exc. 238
Sugar, coal and Congress 981
Summer discounts 435
Superintendents, Mining experience required of mine, Discussion 321, 755, 826
Superior Coal Co.—Hoisting at Gillespie ..489
Super-power plants at mines 909
Super-power survey 371
Surveying—Setting sights in a Silesian mine *569
Susquehanna Collieries Co.
—Electrifying mines *941
—Loading culm bank, Ashmead *908
—Reconstructed breaker, Ashmead *618
—Rock larries, Ashmead *813
Sutherland, Senator 79, 1094
Switches, frogs in laying mine (inq.), *629, Discussion *1163
Switzerland, imports 285, 328, 494, 588, 669

T

Tables, Concentrating, Grain *741
Talbot mines, Idaho *227
Tariff bill, emergency 981
Tariff bill to tax coal imports 924
Tax, anthracite 642, 762, 916, 963
Tax, income, Eldorado Co. 597
Tax on realty sales, Lefker 421
Tax, Penn. 653 878
Tax, sales 990
Tax, West Va. 283, 653, 878
Taxing clean coal 656
Technical and trade functions, Mixing 170
Tell the miners whole truth 1025
Tennessee—Safety in mines, Discussion 956
Tenn. Coal, Iron & R.R. Co.
—Byproduct plant, Fairfield *126
—Docena plant *130
Testing ash content, Locust Mtn. Coal Co. 178
Testing links in transportation chain, Callahan 117
Testing with Burrell gas detector (inq.), Marsh *913
Thaw houses *451
Thick coal seams safely removed, Pryde and Magraw *576
Thomas, T. P. *864
Tidewater Coal Exchange
—Annual dues 831
—Charleston branch 25, 596, 894
—Contract with Bureau of Mines 506
—Magruder succeeds Howe 1135
—Rule 33 ..... 334, 464, 594
—Success dependent on service 1
Tidewater Exchange, Old N. Y. 377, 681, 916, 1007, 1134
Tie will not slip, Steel mine *622

TIMBERING

—Distance from face 15
—Exam. questions 24, 1000
—Standardizing rules, Discussion 500
Time factor in depletion of mines 405
Time to exercise intelligent self-interest ..849
Tipple, Rebuilding burned, Middleton *313
Tipple scale, How to install, Dodge 821
Tipple, wood, replaced by steel, Garcia ..*857
Tipples
—Airshaft *1032
—Norwood White Coal Co. *217
—Red Jacket Cons. Coal Co. *274
—Sterling Coal Co. *617
—Woodward Iron Co. *1074
Tourniquet like trowser belt *183
Tractor loader *63
Track—Steel mine tie that will not slip ..*622
Tracklayer, Experiences of, Discussion 71
Track welder *1081

TRADE

—Alabama, 1920, McLaurine *159
—Amer. coal men adopt sellers' market methods, Cushing *115

Page

—Amer. export possibilities. Payne *671
—Amer. must extend long-time credits.... 378
—Baltimore exports, 1920 139
—Buffalo market, 1920. Chamberlin..... 150
—Credit, Long term. Gehle 670
—Expansion of overseas coal trade of U. S. Payne 1001
—Export coal business of Amer. Zimmermann *18, *67
—Export coal opportunities, 1921, America's. Andrade *113
—Exports and imports, Germany..... 325
—Exports, Australia 671
—Exports, Growth of coal 849
—Exports, India 588
—Exports, New York.....328, 588, 823, 935, 1177
—Exports, United Kingdom.....226, 259, 639, 832, 935, 1056
—Exports, U. S. 83, 239, 284, 378, 417, 462, 588, 639, 830, 1056, 1139
—Exports, Upper Silesia 678
—France embargoes Amer. coal 328
—Freight rates.....417, 466, 506, 562, 590, 635, 638, 645, 724, 830, 831, 1008, 1135
—Freight rates, interstate 684
—Harbor at Genoa, Italy *116
—Harbor, Kiel *671
—Hoover gets $250,000 to promote foreign trade 1051
—Imports, Belgium 672
—Imports, France 417, 977, 1139
—Imports, Holland 1098
—Imports, Italy 719, 935, 977
—Imports, Switzerland....285, 328, 494, 588, 669
—Imports, Gt. Britain 1001, 1171
—Italy's rys. to buy coal through N. Y... 460
—Lake cargo rates. Ellis..... 763
—Long-term credits 458
—Louisville jobbers had poor year. Williams *144
—Market exchange for coal for N. Y. trade 200
—Middle West. Requa *131
—Navigation Commissioner's report..... 226
—Netherlands, imports 34
—New England. Wolkins *133
—New York market, 1920. Morris.....*146
—Northern Ohio. Hill *147
—Northwest. Welch *152
—Ohio. Lehman *153
—Pacific coast. Kidston 155
—Phila. market, 1920. Hammer.....*137
—Shippers, directory, coal 372
—St. Louis coal market, 1920.....*139
—Tariff bill tax coal imports..... 924
—Tidewater coals, classified. Payne..*443, *490, *539
Trading substance for shadow 940
Traffic executives to confer 1051
Traffic news....47, 96, 214, 258, 301, 345, 390, 432, 478, 520, 564, 610, 695, 737, 780, 847, 893, 937, 979, 1023, 1065, 1108, 1148, 1186
Training men for safety. Discussion..... 454

TRANSPORTATION

—Bucket, self-closing *1116
—Canals of N. Y. State, coal transported 66
—Cars, Fifty-ton side-dump *816
—Conveyor, steel apron *699
—Costs *106
—Merchandising replaces transportation saving 524
—Monongahela River, shipments 389
—Relation to coal industry 30
—Testing links in transportation chain. Callahan 117
—Towing from C. R.R. pier 652
Trend discernible in hoisting..... 783
Trestle to tipple..... 264
Trolley—Clamps *669
Trucks for mine cars. Stevens *9
Tug River Coal Operators Assn. 302, 654
Tunnel driven despite high hill. Venable..*704
Tunnel entrance, drainage *450
Tunnel 2,000 ft. one month, Drove coal.. 743

U

Uncertified mine foremen (inq.) 234. Discussion 410, 585, 628, 756
Union Colliery Co.
—Fire, Kathleen mine 505
—Loading station *530
Page
Union Pacific Coal Co. — Locomotive 27 yrs. service *358
Unions subject to suit..... 546

UNITED KINGDOM

—Alcohol from coal at Skinningrove 626
—British mines that did not cease working 1167
—British oxygen mine-rescue apparatus. Cooper *3. Discussion 715
—Cardiff, coal dock *19
—Coal-cutting machinery 583
—Coal production, England. Discussion... 71
—Day in a British coal mine. Discussion 276
—Decontrol coal industry 547
—Exports 226, 259, 639, 832, 935, 1056
—Froth flotation for cleaning coal..... 497
—Imports, England 1001, 1171
—Milestones in British mine development..1081
—Miners refuse local wage scales..... 596
—New coal companies, 1920..... 910
—Prices, British decontrol unsettles..... 504
—Production costs and profits.....35, 1006
—Production.....259, 328, 1098
—Shipments, bunker 1139
—Stone dusting 1036
—Strike.....641, 681, 723, 770, 831, 880, 923, 966, 1006, 1052, 1092, 1135, 1150, 1173
—Tidal power Severn Estuary 179
—Wages, British miners gain increase..... 284
United Mine Workers of Amer. 271, 635

UNITED STATES. See also "Bureau of Mines" and "Geological Survey"

—Bureau of Mines to purchase Gov't coal 366
—Byproduct coke plants in U. S. 1129
—Cost Federal coal control 50
—Expansion of overseas coal trade. Payne 1001
—Exports.....83, 239, 284, 378, 417, 462, 588, 639, 830, 1056, 1139
—Fatalities, Coal mine, Adams..... 122
—Foodstuffs, imports and exports..... *69
—Fuel consumption 61
—Production 37, 82, *97, 161, 829
—Rhodes fuel-purchase bill *668
U. S. Coal & Coke Co. 256
U. S. Fuel Co. 634
U. S. Steel Corp., report 489
Univ. of Illinois 610, 654
Upper Potomac Coal Assn. .....
Upper Silesian coal as peace bond..... 479
Utah—Idaho Retail Coal Merchants Assn. 782, 1024

V

Valuation, bituminous exports, U. S. 417
Value bituminous, 1920 97
Value, coal production, Alaska 66
Value, coal production West Va. 1128
Value coal properties 565
Value, exports, United Kingdom.....832, 1056
Value of service 49
Vanadium as alloy 944

VENTILATION. See also "Gases, Mine"

—Barometer, Aneroid, readings (inq.)....1084
—Breathing of sealed section of mine. Discussion *186, 369, 409, *584
—Coefficient of friction, Value (inq.)..... 410
—Efficiency. Discussion *755, 1124
—Exam. questions.....24, 235, 322, 370, 411, 501, 545, 587, 630, 758, 868, 958
—Fan at normal capacity, Operating (inq.) 23
—Fan has inclined evasé opening.....*803
—Fan, Power required to drive (inq.)..... 544
—Fans, Auxiliary 784
—Four-entry system (inq.) *1043
—Regulator, Size of opening (inq.)..... 957
—Safe practice. Discussion 233
—Water gage reading re speed of fan (inq.) 867
Voice from the past 392

W

Wages. See "Labor"
Walls, house *996
War Dept. coal cost 77
War Dept. confers service medal on Dr. Garfield 548
War Dept. recommends coal trestles..... 214
Washhouse, Donk Bros.' No. 4 mine.....*1035
Washing, coal. Prochaska .....†231
Page
Washington
—New tariff bill 924
—Strike wage reduction....594, 720, 829, 880
—Wage scale 506
—Working contorted coal. Evans..... 187
Washington (D. C.) coal dealers indicted.. 502
Wash-up room *351
Waste of too many mines 436
Watchman sole attendant at filtered water plant. Baker *750
Water gage reading (inq.) 867
Water hoists replaced by pumps 406
Water in airway, Depth of (inq.) *676, Discussion 1125
Water purification *809
Waterwheel, Ram hoisting engine by.....1040
Weather vane of industry....27, 81, 196, 240, 282, 326, 373, 415, 461, 503, 550, 591, 635, 679, 714, 761, 869 915, 961 1003, 1048, 1087, 1130, 1170
Weitzel, E. H. *654
Welder, Track *1081
Welding machine electric-arc *579
Wentz, Col., corrects unjust inference.... 82
Weston, Dodson & Co. *171
West Kentucky Coal Bureau.....302, 848
West Ky. Coal Operators Assn. 96, 894
West Virginia
—1920 review 157. Northern. Williamson 149
—Mingo 552, 720, 1135, 1173
—Production 157, 1128
—Report Dept. of Mines.....1128
—Shipment Commercial, Kanawha coal... 324
—State police bill 781
—Tax 283, 653, 878
—Union urges open-shop law 78
—Would form miners' union 404
West Va. Coal & Coke Co.—Cement gun. Southward 1081
West Va. Coal Assn. 1066
West Va. Min. Inst.
—Papers 63, *222
—Meeting *1119
Wheaton, F. W. 876
Wheel, self-oiling *11
White, C. P. *684
Why wholesalers are fighting 1169
Winding Gulf Operators Assn. 738
Winslow bill 508
Wisconsin Steel Co.
—Machine remove, transport, sprinkle water *572
—Modern employment practices. Irwin..*1077
—Sprinkler, tank *130
Without and within 1026
Wolfe, G., photo 114
Woodward breaker. Ashmead *851
Woodward Iron Co.—Rotary car dump...*1074
Work that counts for nothing. Luxton... 955
Working cold iron 1109

WORKING MINES. See also "Cutter Coal," "Hoisting," "Haulage," "Electricity," "Power," "Pumping," "Timbering."

—Background in mining, Our..... 783
—Coal-pillar drawing in Europe. Rice....*481
—Combining room-and-pillar with longwall Scholz *661, Discussion *1083
—Contorted coal. Discussion.....187, *674
—Fushun mines. Yamaoka.....*897
—Low coal, working. Discussion....*367, 542
—Overlying seam, Working (inq.). Taylor 455. Discussion.....*865 1163
—Pittsburgh coal (inq.) 369. Discussion 825, 1164
—Practice in So. Wales. Discussion..... 499
—Red Rock Coal Co. 440
—Redstone coal, working (inq.) 72. Discussion 232, 498
—Robbing pillars with machines (inq.) Rogers *767. Discussion *997, *1125
—Roof of "B" seam. Roberts 57. Discussion *498, *826, 1163
—Strip pit, Hutchinson, Kans. .....*1[illegible]
—Strip pits, Fushun Coll. Yamaoka.....*945
—Thick coal seams safely removed. Pryde and Magraw *576
—Unusual mining methods at Weston colliery. Ashmead *448
Works steadily but does not work long...1026
World's coal production 61, 721, 726
Wynkoop, C. B. *635
Wyoming.
—No price fixing 375

Y

Yard, timber *219

AUTHORS' INDEX

Page

ADAMS, W. W. Coal mine fatalities in 1920 122
Allen, A. Skip hoisting *485, *529
——Donk Bros.' No. 4 mine *1027
Allen, C. S. Need of organization by coal trade *124
Anderson, A. R. Southeastern Kentucky..*156
Andrade, C. America's export coal opportunities 1921 .....*113
Arnott, S. Observations of brother fireboss 409
Ash, H. S. Old Newcastle mine *1069
Ashley, G. H. Penn. coals and shales..... 401
Ashmead, D. C. Preparing small sizes by Locust Mtn. Coal Co. *171
——Economies in handling bank coal.....*366
——Cranberry Creek plant *305
——Scranton mines pay mine cave damages *354
——Surface type shovel adapted to mine work *395
——Weston colliery *446
——New non-freezing military explosive..*527
——Go-devils, use of *567
——Reconstructed Penn. breaker *618
——New Inman colliery *801
——Pump runs 12 yrs. without repairs..*804
——Rock larries build own dumps.....*813
——Woodward breaker *851
——Loading culm bank by breasts.....*908
——Kingston plant *989
——Movement of cars at Lytle colliery..*1155
Ashworth, J. Minnie mine explosion....*267
——Make the mines safer 716

BAKER, D. J. Iowa shaft sunk by a clamshell *217
——How a small mine met its surface problems *263
——H. C. Frick Coke Co.'s bathhouse....*349
——Storage, Irwin Gas Coal Co.....*393
——Operating conditions in Iowa.....*437
——Reduces losses in output.....*657
——Plumville apron conveyor *699
——Watchman sole attendant at plant....*750
——Oakland City shaft hoists coal in cages *799
——Preparation at Diamond mines.....*1111
——Sizing and preparing hard low volatile coal *1151
Beach, B. S. Mine locomotives.....*792
Bender, W. L. Training men for safety.. 454
Benedict, A. B. Costs of scraper loading..*222
Bleyer, H. Milwaukee wholesalers face loss 212
Boardman, J. S. Oxygen cylinder, rescue apparatus 715
Bock, H. Efficiency in ventilation.....*755
——Chief factor in Americanization..... 998
Bowen, R. Skill vs. chance..... 71
——Breathing of sealed section..... 186
——Increased production per man 275
——Americanizing work 319
——Engine plane haulage 757
——Working under troublesome roof.....*826
Bowes, S. A. Locomotive pulling vs. pushing trip 1165
Boyer, W. E. Colorado 1920..... 158
Breckenridge, L. P. Fuel supply of world. *60
Breeden, G. W. Arching of roof 1164
Bright, G. Changes in electric locomotives *51
——First coal-mine substation *613
Broadt, P. Signal at dump pit *1076
Bullock, O. Cigarettes, sparks and firedamp 454
——Planning mine 542
Burns, W. N. Lignite bricks 65
Burrows, J. S. Standardizing pools of Sewalls Point Exchange..... 509
Buss, W. E. Breathing seal areas *584
Butler, J. E. Mine-locomotive-haulage....*321

CALLAHAN, J. Testing links in transportation chain 117
Campbell, W. S. Machine vs. hand loading ships *573
Chamberlin, J. W. Buffalo market 1920.. 150
Chambers, W. M. Skill in mining coal... 912
Chester, T. Barometric change on sealed section 369
Connell, E. L. Portable electric drills....*818
Cooper, J. British oxygen mine-rescue apparatus *5
Coxe, E. H. Mine locomotive haulage....*543
Cushing, G. H. Adopt sellers' market methods *115
——Demand unlikely to boost prices.....1049

DAUGHERTY, G. E. Loose and torn clothes cause accidents 22
Davies, S. Cigarettes, sparks and firedamp 453
——Working contiguous seams 866
De Coster, J. M. Idaho's coal beds.....*227
Deeble, B. Experiences of a tracklayer.. 71
De Graaf, G. A. Constituents in ash.....*534
Dennis, R. B. Forge and mine repair shop. *717
Dickinson, W. Working contiguous seams *866
Dickson, W. E. Overcasts better than mine doors 1160
Dillig, G. F. Loader runs on coal bottom. *63

Page

Dodge, E. C. How to install a tipple scale 821
Dovey, J. T. Coal pulverizing stations..1124
Dunbar, E. E. Coal prices in Detroit..... 145
Dunn, R. British Columbia's output..... 151
Dunn, S. Another coal crisis on way..... 507
Dyer, B. W. Test of carbon-monoxide detector 269

EDWARDS, G. Working low coal 367
——Certification, Penn. revised mine law..1041
——Two adjoining mines compared.....1082
——Economy and efficiency in ventilation.1124
——Pillar above pillar 1163
——Guarding against roof slips 1164
Ehlers, W. A. Conserving coal through use of gas *397
Ellis, W. P. Lake cargo rates 763
Eschbach, J. E. Regulation coal industry in Indiana 412
Evans, G. W. Working contorted coal in Washington 187
Evans, R. A. Looking ahead with diamond drill *705

FETTKE, C. R. Penn. coals and shales.. 401

GABELL, H. W. Consumer boost price of coal 712
Garcia, J. A. Skip hoisting.....*485, *529
——Hillsboro wood tipple replaced by steel *857
Gehle, F. W. Long-term credit 670
Gordon, E. Problems and accomplishments of retailers in 1920..... 121
Griffith, G. Practice in So. Wales mines. 499
Gutheim, A. G. What will be production goal of 1921? 118

HALL, R. D. Engrs. Club, Phila., discussions 16
——Wages of mine workers increase 1920,*272
——Coal industry 1920 .....*126
——Strikes against Industrial Relations Court 323
Hammer, W. D. Philadelphia market 1920.*137
Harger, F. D. Combustion on basis carbon dioxide *495
Harrington, D. Test of carbon-monoxide detector 269
Harrington, J. Factors in stoker design.. 987
Haverstick, S. G. Chart speeds interpolation of contours *662
Heise, C. A. Germany suffers coal shortage 279
Hennigan, J. A. Personnel anthracite examining boards 188
Herzog, H. O. Germany nationalize coal mines? 184
——Consumer ownership in Germany 230
——Bill socialization German coal mines. 325
——German coal production 1920..... 501
——Ash separated from coal *580
Hill, E. G. Flotation process *993
Hill, J. W. Northern Ohio *147
Hogarth, T. A day in a British coal mine. 276
——Geology of the coal miner 320
Holbrook, E. A. National aspects of coal industry 129
Hood, O. P. Scientific classification.....*190
Hoover, H. Regrouping administrative units 759
Hunt, S. H. Rotary shovel *789

IRWIN, N. O. Modern employment practices *1077

JAMES, O. H. Working contiguous seams 866
——Safety in Penn. mines 956
Johnson, L. Robbing pillars with machines 998

KIDSTON, A. M. Coal trade on Pacific coast 155
King, E. V. Precautions to prevent electrical equipment from fires.....1161
Kingsland, R. L. Locomotives for gathering purposes 570
Kjellgren, J. G. Defective rail return..... 544
Knickerbocker, E. J. Southwest, 1920.. 154

LECORCHICK A. Cuts thousand tons in 8 hrs. 312
Lefker, H. Tax on realty sales..... 421
Le Grand L. W. Alden Coal Co. installs large hoist *797
——Susquehanna installs electric slope..*941

Page

Lehman, J. W. Ohio coal trade, 1920.....*153
Lesher, C. E. Responsibility of coal consumer 74
Levin, N. D. Working low coal..... *21
——Planning mine 543
——Changes in electric mine locomotives.*1157
Libiez, G. F. Working contorted coal....*674
——Building chutes in pitching seams....*911
——Angle of shotholes in blasting.....*1125
Lightburn, R. W. Make the mine safe.. 22
——Coal production in England..... 71
——Safe practice in mine ventilation.... 233
——Examination for shotfirers 276
——Sealing a section 716
——Wise superintendence 826
——Robbing pillars *997
——Certification under Pa. mine law....1041
——Automatic winding spool for blasting1165
Lloyd, J. E. Avert Gov't. control coal industry 109
——We need fewer laws 917
Luxton, W. H. Roller bearing mine-car wheels 275
——Avoiding roof troubles *498
——Work that counts for nothing 955
——Violations of rules in blasting..... 999
——Rib side working face *1083

McKENNEY, W. F. Geographical shifts in production *106
McLaurine, H. B. Alabama production... 159
McManiman, C. Roof troubles overcome..1163
——Pillar above pillar .....
Magraw, R. A. Thick coal seams removed.*576
Marsh, J. H. Testing with Burrell gas detector *913
Marshall, R. A. Employment uncertified men in Colo. 628
Marshall, R. S. Driving holes by power drills *787
——Qualified shotfirers 911
Martin, M. P. Mining machine *785
Mason, A. J. Coal mining as seen by ore engineer *708
Meyer, K. A. Storage battery locomotives. 667
Middleton, R. T. Rebuilding burned tipple.*313
Molani, P. Mine foremen and bituminous mine law 585
Morris, R. W. New York market, 1920..*146
Mosbey, N. E. Composition of natural gas 500

NORTHOVER, J. Shelter holes on haulage roads 825
——Depth of water, airway half full....1125

PARFITT, I. C. Safety in machine pillar work *1125
Parker, E. W. Production anthracite 1920 110
Payne, H. M. Classified tidewater coal... *443, *490, *539
——Amer. export possibilities .....
——Consumer boost price of coal 712
——Expansion of overseas coal trade of U. S. 1001
Pinaire, K. M. Eastern Ohio 1920.....*141
Prochaska, E. Coal washing.....
Pryde, G. B. Thick coal seams removed..*576
Purdue, D. H. Discouragement to mining students 627

REAM, W. A. Development of improved equipment 955
——Authority of fireboss 956
Requa, H. A. Middle West looks for improved coal trade *131
Rice, A. F. New York retail industry organically sound 123
Rice, G. S. Coal-pillar drawing in Europe.*481
——Breathing of sealed areas.....*584
Ricketts, A. Breathing of sealed areas.... 584
Roberts, A. E. Roof of "B" seam..... 57
Robie, E. H. Meeting Canadian Min. Inst. 590
Rogers, J. D. Robbing pillars with machines *757
Rose, J. Skill among miners..... 233
Rutherford, J. Centrifugal pump formulas 827

SAKON, F. W. Robbing pillars with machines *997
Sampson, E. Industrial buyers are incredulous 1009
Scholz, C. Combining room-and-pillar with longwall *661
Sell, D. E. Central Penn. 1920.....*142
Sharrer, O. G. Shifting location of slope pump *277
Shenton, T. J. Natural advantages favor Amer. mining 188
Shumway, R. W. Belt conveyor transfers coal across river *525
Sickman, D. V. Breaking down coal without powder *180, 265
Skougor, H. E. Rosita, Mex.....*983, *1037

Page

Smillie, S. Breathing of sealed areas.... 585
Smith, C. W. Storage battery locomotive *795
Smith, G. O. More facts about coal needed 119
——Cost of a ton of coal 870
Southward, G. B. Cement gun work.....1081
Spangler, D. E. What will be production goal of 1921? 118
Stahl, C. R. Improved equipment vs. conditions 319
Startzman, H. N. How an induction motor motes *903
Stevens, I. E. Trucks for mine cars.... *9
Stevens, J. E. Making briquets of fine materials *663
Stewart, E. P. Washing coal for metallurgical coke *807
Strain, W. Concentrating tables.....*741

TAYLOR, J. C. R. Working overlying seam 455
Thiessen, R. Coal under microscope..... *12
Thornley, F. C. One man stores 1500 tons of coal a day *261
Tryon, F. G. Geographical shifts in production *106

VENABLE, M. W. Tunnel driven despite high hill *704

Page

WADLEIGH, F. R. Fuel research bureau 581
Wagner, F. H. Portable vs. stationary compressors *668
Walker, W. J. Certification Penn. revised mine law 1042
Ward, E. S. Ash content in coal.....*403
Wardlaw, R. B. Certification Penn. revised mine law 1042
Watkins, T. H. Government cooperation. 874
Watts, J. S. Rope rollers 1035
Waugh, A. Does uncertified man escape penalty? 756
Welch, G. A. Northwest industry.....*152
White, W. A. Lake traffic in coal.....*103
Wiley, J. H. Mining experience, mine superintendents 321
——Mine foremen and bituminous mine law 586
——Mine inspectors' difficulties 865
——Fireboss' warning unheeded.....*867
——Precautions in shotfiring 912
Williams, A. W. Louisville jobbers had poor year *144
Williamson, H. A. Northern West Va.... 149
Wing, D. L. Obstacles to return pre-war costs *363
——Cooperative buying and reserve storage 1045
Wolkins, G. G. Trade conditions New England *133
Woods, L. E. Washing coal with air instead of water *810

Page

Wooton, P. La Follette Comm. finds coal problem complex 245
——Control bill 376
——Calder bill amended 418
——Calder bill dies 465
——Another coal panic 551
——News from the capital.....595, 682, 722
——Calder report 597
——Daughterty enjoined in conspiracy case 637
——Coal commissioner's powers..... 769
——Cut on freight rates on lake coal..... 831
——Coal men and Gov't. experts to meet.. 877
——New Frelinghuysen bill 919
——Frelinghuysen, compulsory reports....1090
——Operators join opposition to coal bill.1133
——Coal stabilization bill not likely to pass 1171

YAMOAKA, N. Manchurian plant.....*897
——Two strip pits, Fushun Coll. *945
Young, D. Responsibility mine officials..1083
Youngling, L. S. Progressive standardization 367

ZERN, E. N. Coal loading machines.... 715
Zimmermann, E. W. Export coal business of Amer. *18, *67